



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,258	08/21/2003	Francesco Cino Matacotta	MOD3216P0291US	7327
32116	7590	06/02/2004	EXAMINER	
WOOD, PHILLIPS, KATZ, CLARK & MORTIMER			STRICKLAND, JONAS N	
500 W. MADISON STREET				
SUITE 3800			ART UNIT	PAPER NUMBER
CHICAGO, IL 60661			1754	

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/645,258	MATACOTTA ET AL
	Examiner Jonas N. Strickland	Art Unit 1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 21 August 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-8 and 11-14 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 11-14 is/are allowed.
- 6) Claim(s) 1-7 is/are rejected.
- 7) Claim(s) 8 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 21 August 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. 09/590,454.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

**DETAILED ACTION*****Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1754

4. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matacotta et al. (WO 97/28887) in view of McCarron et al. (Mat. Res. Bull.) and Aufdembrink et al. (US Patent 5,036,159).

Applicant claims a method for full oxidation of volatile organic compounds (VOC), particularly hydrocarbons, comprising a step of contacting the volatile compounds with a catalyst comprising a non-stoichiometric crystalline compound conventionally designated by a formula which corresponds to  $A_{14}Cu_{24}O_{41}$  (I), where A is Sr or a solid solution of Sr with alkaline-earth metals, alkaline metals, lanthanides; or a non-stoichiometric crystalline compound conventionally designated by a formula which corresponds to  $B_4Cu_5O_{10}$  (II), where B is Ca or a solid solution of Ca with alkaline-earth metals, alkaline metals, lanthanides; or mixtures thereof, the catalyst being prepared in a form which has a large specific surface area, preferably larger than  $25\text{ m}^2/\text{g}$ .

Matacotta et al. discloses catalysts for the full oxidation of volatile organic compounds, particularly hydrocarbons, which comprises a compound having the formula  $A_2B_3O_{6\pm d}$  where A is an alkaline-earth metal, an alkaline metal, a lanthanide, or a solid solution thereof and B is a transition metal (see abstract). Matacotta continues to disclose wherein A may be chosen from a Sr solid solution and B may be copper (p. 2, lines 18-24). The catalyst shows a surface area of  $116\text{ m}^2/\text{g}$  (p. 8, lines 10-13). While, Matacotta does not disclose a compound corresponding to the formula  $A_{14}Cu_{24}O_{41}$ , Matacotta et al clearly teaches wherein it is known in the art to use an active compound comprised of Sr, Cu, and O in treating hydrocarbons.

Art Unit: 1754

However, McCarron et al. teaches a superconductor byproduct having the formula  $\text{Sr}_{14}\text{Cu}_{24}\text{O}_{41}$  (see abstract).

Aufdembrink et al. teaches ternary oxide phases, including copper oxide, which are superconductors are employed in catalytic processes, such as treating hydrocarbons. The ternary oxide phases include La-Sr-Cu (see abstract and col. 1, lines 5-25).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Matacotta by using the superconductor byproduct of McCarron et al. and the ternary oxide phase taught by Aufdembrink et al, because McCarron et al. teaches a superconductor byproduct having the formula  $\text{Sr}_{14}\text{Cu}_{24}\text{O}_{41}$  and Aufdembrink et al. teaches wherein ternary oxide phases, including copper oxide, which are superconductors are employed in catalytic processes, such as for treating hydrocarbons. Matacotta et al teaches using an oxide comprised of strontium and copper for treating hydrocarbons. Such modification would have been obvious to one of ordinary skill in the art, because one would expect a superconductor byproduct having the formula  $\text{Sr}_{14}\text{Cu}_{24}\text{O}_{41}$  and wherein superconductor materials comprised of Sr and Cu are useful as catalysts in treating hydrocarbons to be similarly useful and applicable to a process for treating hydrocarbons comprised of Sr and Cu as taught by Matacotta et al.

With respect to claims 2-7, Matacotta et al. teaches an  $\text{Al}_2\text{O}_3$  porous substrate as a composite material in the form of granules (p. 6, lines 11-13). The substrate may be in the form of a thin film as well (p. 3, lines 22-23).

***Allowable Subject Matter***

Art Unit: 1754

5. Claims 11-14 are allowed.

6. The following is an examiner's statement of reasons for allowance: The cited prior art fails to disclose a method of preparing  $\text{Sr}_{14}\text{Cu}_{24}\text{O}_{41}$  and  $\text{Ca}_4\text{Cu}_5\text{O}_{10}$  under the process conditions as instantly claimed. The prior art fails to disclose the molar concentration of the aqueous solution as well as the heating temperatures as instantly claimed.

7. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. This application apparently discloses allowable subject matter (i.e., regarding the subject matter of claim 8). Instant claim 8 recites wherein the catalyst comprises 5% to 20% by weight of the non-crystalline compound, which corresponds to  $\text{A}_{14}\text{Cu}_{24}\text{O}_{41}$ , where A is Sr and B $_{4}\text{Cu}_5\text{O}_{10}$ , where B is Ca. The cited prior fails to teach the instantly claimed weight ratio. Nakatsuji et al. (US Patent 5,380,692) discloses a catalyst comprised of La, Sr, Cu, and O in the weight range of 0.1 to 70% by weight (col. 6, lines 33-39), but Nakatsuji et al. is geared towards reducing nitrogen oxides and is not directed towards reducing VOC's.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Art Unit: 1754

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ito et al. (US Patent 4,857,499)

Ovshinsky et al. (US Patent 5,227,362)

Nakatsuji et al. (US Patent 5,380,692)

Chen et al. (US Patent 5,643,545)

Yamamoto (US Patent 5,843,288)

Ziebarth et al. (US Patent 5,882,616)

Nguyen et al. (US Patent 5,895,636)

Khan (US Patent 6,183,717 B 1)

Naeem (US Patent 6,197,267 B1)

Belmonte et al. (US Patent 6,207,120 B1)

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonas N. Strickland whose telephone number is 571-272-1359. The examiner can normally be reached on M-TH, 7:30-5:00, off 1st Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1754

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jonas N. Strickland  
May 28, 2004